

112TH CONGRESS  
1ST SESSION

# S. 692

To improve hurricane preparedness by establishing the National Hurricane Research Initiative, and for other purposes.

---

IN THE SENATE OF THE UNITED STATES

MARCH 30, 2011

Mr. NELSON of Florida introduced the following bill; which was read twice and referred to the Committee on Commerce, Science, and Transportation

---

## A BILL

To improve hurricane preparedness by establishing the National Hurricane Research Initiative, and for other purposes.

1       *Be it enacted by the Senate and House of Representa-*  
2       *tives of the United States of America in Congress assembled,*

3       **SECTION 1. SHORT TITLE.**

4       This Act may be cited as the “National Hurricane  
5       Research Initiative Act of 2011”.

6       **SEC. 2. DEFINITIONS.**

7       In this Act:

8               (1) **ELIGIBLE ENTITIES.**—The term “eligible  
9       entities” means Federal, State, regional, and local  
10      government agencies and departments, tribal govern-

1       ments, universities, research institutes, for-profit en-  
 2       tities, and nongovernmental organizations.

3           (2) INDIAN TRIBE.—The term “Indian tribe”  
 4       has the meaning given the term in section 102 of the  
 5       Federally Recognized Indian Tribe List Act of 1994  
 6       (25 U.S.C. 479a).

7           (3) INITIATIVE.—The term “Initiative” means  
 8       the National Hurricane Research Initiative estab-  
 9       lished under section 3(a)(1).

10          (4) STATE.—The term “State” means any  
 11       State of the United States, the District of Columbia,  
 12       American Samoa, Guam, the Commonwealth of the  
 13       Northern Mariana Islands, Puerto Rico, and the  
 14       Virgin Islands.

15          (5) TRIBAL GOVERNMENT.—The term “tribal  
 16       government” means the governing body of an Indian  
 17       tribe.

18          (6) UNDER SECRETARY.—The term “Under  
 19       Secretary” means the Under Secretary for Oceans  
 20       and Atmosphere.

21   **SEC. 3. NATIONAL HURRICANE RESEARCH INITIATIVE.**

22       (a) ESTABLISHMENT.—

23           (1) IN GENERAL.—The Under Secretary shall  
 24       establish an initiative to be known as the “National  
 25       Hurricane Research Initiative” for the purposes de-

1 scribed in paragraph (2). The Initiative shall consist  
2 of—

3 (A) the activities carried out under this  
4 section; and

5 (B) the research carried out under section  
6 4.

7 (2) PURPOSES.—The purposes described in this  
8 paragraph are as follows:

9 (A) To conduct research, incorporating to  
10 the maximum extent practicable the needs of el-  
11 igible entities, to enable the following:

12 (i) Improvement of the understanding  
13 and prediction of hurricanes and other  
14 tropical storms, including—

15 (I) storm tracking and pre-  
16 diction;

17 (II) forecasting of storm forma-  
18 tion, intensity, and wind and rain pat-  
19 terns, both within the tropics and as  
20 the storms move poleward;

21 (III) storm surge modeling, in-  
22 land flood modeling, and coastal ero-  
23 sion;

1 (IV) the interaction with and im-  
 2 pacts of storms with the natural and  
 3 built environment; and

4 (V) the impacts to and response  
 5 of society to destructive storms, in-  
 6 cluding the socioeconomic impacts re-  
 7 quiring emergency management, re-  
 8 sponse, and recovery.

9 (ii) Development of infrastructure  
 10 that is resilient to the forces associated  
 11 with hurricanes and other tropical storms.

12 (iii) Mitigation of the impacts of hur-  
 13 ricanes on coastal populations, the coastal  
 14 built environment, and natural resources,  
 15 including—

16 (I) coral reefs;

17 (II) mangroves;

18 (III) wetlands; and

19 (IV) other natural systems that  
 20 can reduce hurricane wind and flood  
 21 forces.

22 (iv) Improvement of communication  
 23 with the public about hurricane forecasts  
 24 and risks associated with hurricanes to re-  
 25 duce the harmful impacts of hurricanes

1 and improve the response of society to de-  
2 structive storms.

3 (B) To provide training for the next gen-  
4 eration of hurricane researchers and fore-  
5 casters.

6 (b) IMPLEMENTATION PLAN.—

7 (1) IN GENERAL.—Not later than 1 year after  
8 the date of the enactment of this Act, the Under  
9 Secretary shall, in coordination with the Director of  
10 the National Science Foundation, develop a detailed,  
11 5-year implementation plan for the Initiative that—

12 (A) incorporates the priorities for Federal  
13 science and technology investments set forth in  
14 the June 2005 publication, “Grand Challenges  
15 for Disaster Reduction”, and in related 2008  
16 implementation plans for hurricane and coastal  
17 inundation hazards of the Subcommittee on  
18 Disaster Reduction of the Committee on Envi-  
19 ronment and Natural Resources of the National  
20 Science and Technology Council;

21 (B) to the extent practicable and as appro-  
22 priate, establishes strategic goals, benchmarks,  
23 milestones, and a set of systematic criteria and  
24 performance metrics by which the overall effec-  
25 tiveness of the Initiative may be evaluated on a

1 periodic basis, including evaluation of mecha-  
2 nisms for the effective transition of research to  
3 operations and the application of research re-  
4 sults for reducing hurricane losses and related  
5 public benefits; and

6 (C) identifies opportunities to leverage the  
7 results of the research carried out under section  
8 4 with other Federal and non-Federal hurricane  
9 research, coordination, and loss-reduction initia-  
10 tives, such as—

11 (i) the National Windstorm Impact  
12 Reduction Program established by section  
13 204(a) of the National Windstorm Impact  
14 Reduction Act of 2004 (15 U.S.C. 15703);

15 (ii) the National Flood Insurance Pro-  
16 gram established under chapter 1 of the  
17 National Flood Insurance Act of 1968 (42  
18 U.S.C. 4011 et seq.);

19 (iii) the initiatives of the Robert T.  
20 Stafford Disaster Relief and Emergency  
21 Assistance Act (42 U.S.C. 5121 et seq.);

22 (iv) wind hazard mitigation initiatives  
23 carried out by a State;

24 (v) the Science Advisory Board, Social  
25 Science Working Group, and Hurricane

1 Forecast Improvement Project of the Na-  
2 tional Oceanic and Atmospheric Adminis-  
3 tration; and

4 (vi) the Working Group for Tropical  
5 Cyclone Research of the Office of the Fed-  
6 eral Coordinator for Meteorological Serv-  
7 ices and Supporting Research.

8 (2) REVIEW.—Not later than 1 year after the  
9 date of the enactment of this Act, the Under Sec-  
10 retary shall make the implementation plan required  
11 by paragraph (1) available for review by the fol-  
12 lowing:

13 (A) The Director of the National Science  
14 Foundation.

15 (B) The Secretary of Homeland Security.

16 (C) The Director of the National Institute  
17 for Standards and Technology.

18 (D) The Commanding General of the U.S.  
19 Army Corps of Engineers.

20 (E) The Commander of the Naval Meteor-  
21 ology and Oceanography Command.

22 (F) The Associate Administrator for  
23 Science Mission Directorate of the National  
24 Aeronautics and Space Administration.

1 (G) The Director of the U.S. Geological  
2 Survey.

3 (H) The Director of the Office of Science  
4 and Technology Policy.

5 (I) The Director of the National Economic  
6 Council.

7 (3) REVISIONS.—The Under Secretary shall re-  
8 vise the implementation plan required by paragraph  
9 (1) not less frequently than once every 5 years.

10 (c) RESEARCH.—

11 (1) ESTABLISHMENT OF RESEARCH OBJEC-  
12 TIVES.—The Under Secretary shall, in consultation  
13 with the Director of the National Science Founda-  
14 tion, establish objectives for research carried out  
15 pursuant to section 4 that are—

16 (A) consistent with the purposes described  
17 in subsection (a)(2); and

18 (B) based on the findings of the expert as-  
19 sessments and strategies published in the fol-  
20 lowing:

21 (i) The June 2005 publication enti-  
22 tled, “Grand Challenges for Disaster Re-  
23 duction”, and the related 2008 implemen-  
24 tation plans for hurricane and coastal in-  
25 undation hazards of the Subcommittee on



Disaster Reduction of the Committee on  
Environment and Natural Resources of the  
National Science and Technology Council.

(ii) The January 2007 report by the  
National Science Board entitled, “Hurri-  
cane Warning: The Critical Need for a Na-  
tional Hurricane Initiative”.

(iii) The February 2007 report by the  
Office of the Federal Coordinator for Me-  
teorological Services and Supporting Re-  
search entitled, “Interagency Strategic Re-  
search Plan for Tropical Cyclones: The  
Way Ahead”.

(iv) Reports from the Hurricane In-  
tensity Working Group of the National  
Science Advisory Board of the National  
Oceanic and Atmospheric Administration.

(2) AREAS OF CONCENTRATION.—The objec-  
tives required by paragraph (1) shall provide for 3  
areas of concentration as follows:

(A) Fundamental hurricane research,  
which may include research to support contin-  
ued development and maintenance of commu-  
nity weather research and forecast models, in-  
cluding advanced methods of observing storm

1 structure and assimilating observations into the  
2 models, in which the agency or institution  
3 hosting the models ensures broad access and  
4 use of the model by the civilian research com-  
5 munity.

6 (B) Technology assessment and develop-  
7 ment.

8 (C) Research on integration, transition,  
9 and application of research results.

10 (d) NATIONAL WORKSHOPS AND CONFERENCES.—

11 The Under Secretary may, in coordination with the Direc-  
12 tor of the National Science Foundation, carry out a series  
13 of national workshops and conferences that assemble a  
14 broad collection of scientific disciplines—

15 (1) to address hurricane-related research ques-  
16 tions; and

17 (2) to encourage researchers to work collabo-  
18 ratively to carry out the purposes described in sub-  
19 section (a)(2).

20 (e) PUBLIC INTERNET WEB SITE.—The Under Sec-  
21 retary shall facilitate the establishment of a public Inter-  
22 net Web site for the Initiative—

23 (1) to foster collaboration and interactive dia-  
24 logues among the Under Secretary, the Director of  
25 the National Science Foundation, and the public;

1           (2) to enhance public access to Initiative docu-  
2           ments and products, including—

3                   (A) reports and publications of the Initia-  
4           tive;

5                   (B) the most recent 5-year implementation  
6           plan developed under subsection (b); and

7                   (C) each annual cross-cut budget and re-  
8           port submitted to Congress under subsection  
9           (f); and

10          (3) that includes a publicly accessible clearing-  
11          house of Federal research and development centers  
12          engaged in research and development efforts that  
13          are complementary to the Initiative.

14          (f) ANNUAL CROSS-CUT BUDGET AND REPORT.—

15               (1) REQUIREMENT FOR ANNUAL CROSS-CUT  
16          BUDGET AND REPORT.—Beginning with the first fis-  
17          cal year beginning after the date the Under Sec-  
18          retary completes the implementation plan required  
19          by subsection (b), the Director of the Office of  
20          Science and Technology Policy shall, in conjunction  
21          with the Under Secretary, the Director of the Na-  
22          tional Science Foundation, and the Director of the  
23          Office of Management and Budget, submit to Con-  
24          gress each year, together with documents submitted  
25          to Congress in support of the budget of the Presi-

1 dent for the fiscal year beginning in such year (as  
 2 submitted pursuant to section 1105 of title 31,  
 3 United States Code)—

4 (A) a coordinated annual report for the  
 5 Initiative for the last fiscal year ending before  
 6 the date on which the report is submitted; and

7 (B) a cross-cut budget for the Initiative for  
 8 the first fiscal year beginning after the date on  
 9 which the report is submitted.

10 (2) CONTENTS.—The report required by para-  
 11 graph (1)(A) shall—

12 (A) document the grants and contracts  
 13 awarded to eligible entities under section 4;

14 (B) for each eligible entity that receives a  
 15 grant or contract under section 4, identify what  
 16 major activities were undertaken with such  
 17 funds, grants, and contracts; and

18 (C) for each research activity or group of  
 19 activities in an area of concentration described  
 20 in subsection (c)(2), as appropriate, identify  
 21 any accomplishments, which may include full or  
 22 partial achievement of any strategic goals,  
 23 benchmarks, milestones, or systematic criteria  
 24 and performance metrics established for the im-  
 25 plementation plan under subsection (b)(1)(B).

1 **SEC. 4. NATIONAL HURRICANE RESEARCH.**

2 (a) NATIONAL SCIENCE FOUNDATION COMPETITIVE  
3 GRANT RESEARCH PROGRAM.—

4 (1) IN GENERAL.—The Director of the National  
5 Science Foundation shall, in coordination with the  
6 Under Secretary, establish a program to award  
7 grants to eligible entities to carry out research that  
8 is consistent with the research objectives established  
9 under section 3(c)(1).

10 (2) SELECTION.—The National Science Foun-  
11 dation shall select grant recipients under this section  
12 through its merit review process.

13 (b) NATIONAL OCEANIC AND ATMOSPHERIC ADMIN-  
14 ISTRATION RESEARCH PROGRAM.—

15 (1) IN GENERAL.—The Under Secretary shall,  
16 in coordination with the Director of the National  
17 Science Foundation, carry out a program of research  
18 that is consistent with the research objectives estab-  
19 lished under section 3(c)(1).

20 (2) RESEARCH ACTIVITIES.—Research carried  
21 out under paragraph (1) may be carried out  
22 through—

23 (A) intramural research;

24 (B) awarding grants to eligible entities to  
25 carry out research;

1 (C) contracting with eligible entities to  
2 carry out research; or

3 (D) entering into cooperative agreements  
4 to carry out research.

5 (3) DEMONSTRATION PROJECTS AUTHOR-  
6 IZED.—Research carried out under this subsection  
7 may include demonstration projects.

8 (c) COLLABORATION.—To the maximum extent prac-  
9 ticable, each entity carrying out research under this sec-  
10 tion shall collaborate with existing Federal and federally  
11 funded research centers operating in related fields, for-  
12 profit organizations, and international, regional, State,  
13 local, and tribal governments—

14 (1) to gather and share experiential informa-  
15 tion; and

16 (2) to advance scientific and engineering knowl-  
17 edge, technology transfer, and technology commer-  
18 cialization in the course of conduct of hurricane-re-  
19 lated research and its application to mitigating the  
20 impacts of hurricanes and other tropical storms on  
21 society.

○